

APPEAL BRIEF UNDER 37 C.F.R. § 41.37

TABLE OF CONTENTS

	<u>Page</u>
<u>1. REAL PARTY IN INTEREST</u>	2
<u>2. RELATED APPEALS AND INTERFERENCES</u>	3
<u>3. STATUS OF THE CLAIMS</u>	4
<u>4. STATUS OF AMENDMENTS</u>	5
<u>5. SUMMARY OF CLAIMED SUBJECT MATTER</u>	6
<u>6. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL</u>	8
<u>7. ARGUMENT</u>	9
<u>8. SUMMARY</u>	14
<u>CLAIMS APPENDIX</u>	15
<u>EVIDENCE APPENDIX</u>	17
<u>RELATED PROCEEDINGS APPENDIX</u>	18

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Trung T. Doan

Examiner: Sylvia MacArthur

Serial No.: 09/652,713

Group Art Unit: 1763

Filed: August 31, 2000

Docket: 303.928US5

For: CHEMICAL DISPENSING SYSTEM FOR SEMICONDUCTOR WAFER
PROCESSING

APPEAL BRIEF UNDER 37 CFR § 41.37

Mail Stop Appeal Brief- Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

The Appeal Brief is presented in support of the Notice of Appeal to the Board of Patent Appeals and Interferences, filed on April 19, 2007, from the Final Rejection of claims 36-45 of the above-identified application, as set forth in the Final Office Action mailed on January 19, 2007.

The Commissioner of Patents and Trademarks is hereby authorized to charge Deposit Account No. 19-0743 in the amount of \$500.00 which represents the requisite fee set forth in 37 C.F.R. § 41.20(b)(2). The Appellants respectfully request consideration and reversal of the Examiner's rejections of pending claims.

1. REAL PARTY IN INTEREST

The real party in interest of the above-captioned patent application is the assignee,
MICRON TECHNOLOGY, INC..

2. RELATED APPEALS AND INTERFERENCES

A first appeal in the present application was filed on April 24, 2002. The Board rendered a Decision on Appeal on July 29, 2003, which reversed the Examiner's rejection, and imposed new grounds for rejection.

A second, related appeal was filed with respect to the present application on April 21, 2004. The second appeal was prompted by the Examiner's reluctance to address the new grounds for rejection imposed in the first appeal. The Board rendered a Decision on Appeal on June 27, 2005, which reversed the new grounds imposed in the first appeal, and remanded the application to the Examiner for further consideration of a prior art rejection not addressed in the first appeal. Prosecution was again reopened, and after receiving a final rejection, the Appellant has filed this Appeal in response.

There are no other appeals, interferences, or judicial proceedings known to Appellant that will have a bearing on the Board's decision in the present appeal.

3. STATUS OF THE CLAIMS

The present Application was filed on August 31, 2000 with claims 34-37 and 41-43. In the response filed July 19, 2001, claims 34-35 and 41-43 were cancelled in response to a restriction requirement, so that claims 36-37 remained. Claims 36-37 were rejected under 35 U.S.C. §102(b) as anticipated by U.S. Patent No. 5,289,222 to Hurtig. Claim 36 was amended in response. The Examiner rejected claims 36-37 in a Final Office Action dated October 16, 2001. The rejection of claims 36-37 was appealed. In a Board Decision (Appeal No. 2002-2158) dated July 29, 2003, the rejections under 35 U.S.C. §102(b) were reversed, and new grounds for rejection under 35 U.S.C. §112, second paragraph, were imposed.

In a subsequent action on the merits, the Examiner claimed a lack of authority to overturn the Board's decision, and again finally rejected claims 36-37. Appellant filed a Request for Continued Prosecution (RCE) and again appealed the rejection of claims 36-37. In a Board Decision (Appeal No. 2005-1352) dated June 27, 2005, the rejections under 35 U.S.C. §112, second paragraph were reversed, and the application was remanded for further consideration of the rejection under 35 U.S.C. §102(b) not considered in the previous appeal.

In an action dated August 19, 2005, the Examiner again rejected claims 36-37 based upon the Hurtig reference. Claims 36-37 were amended in a response filed January 17, 2006, and claims 38-41 were added. Claims 36-41 were subsequently rejected in a Final Office Action dated May 16, 2006.

Appellant filed a Request for Continued Prosecution, and received a non-final Office Action dated October 10, 2006. In the non-final action, claims 36-39 and 41 were rejected under 35 U.S.C. §102(e) as anticipated based by U.S. Patent No. 5,756,155 to Tzeng, *et al.* ("Tzeng"), and claim 40 was rejected under 35 U.S.C. §103(a) as unpatentable over JP 08-017708 to Sukenari ("Sukenari"). Claims 36 and 41 were amended, and claims 42-45 were added in a response filed November 2, 2006. Claims 36-45 were rejected in a Final Office Action dated January 19, 2007. Accordingly, claims 36-41 stand twice rejected, and are the subject of the present appeal.

4. STATUS OF AMENDMENTS

No amendments have been made in response to, or subsequent to the Final Office Action mailed January 19, 2007.

5. SUMMARY OF CLAIMED SUBJECT MATTER

Various aspects of the present inventive subject matter include, but are not limited to, a chemical dispensing systems for semiconductor wafer processing. Among the various aspects, the disclosed system is suitably configured to perform selected wafer processing tasks, such as removing an edge bead formed on a wafer that may be formed during a spin coating process.

INDEPENDENT CLAIM 36

Claim 36 presently recites: “A device comprising:

a dispenser configured to release a chemical toward an edge bead of a substrate” (solvent dispensing nozzle 16 described at page 3, line 18, and page 4, line 15, and shown in Figures 1 and 2);

“a splash controller concentrically positioned at least partially around said dispenser and physically unattached from the edge bead, the splash controller being configured to draw the chemical from at least one surface of the substrate and toward said splash controller, wherein said splash controller is configured to generate a gas pressure around the edge bead that is lower than an ambient gas pressure, and wherein said splash controller is configured to physically intercept the chemical.” (splash controller 18 (e.g., vacuum port 18) described at page 3, lines 19-21, and page 4, lines 17-18, and shown in Figures 1 and 2).

INDEPENDENT CLAIM 41

Claim 41 presently recites: “A device comprising:

a dispenser configured to release a chemical toward an edge bead on a semiconductor substrate” (solvent dispensing nozzle 16 described at page 3, line 18, and page 4, line 15, and shown in Figures 1 and 2);

“a splash controller including a vacuum port, wherein the vacuum port is concentrically positioned about the dispenser, wherein the vacuum port is configured to generate a gas pressure

around the edge bead and the dispenser, the generated gas pressure being sufficiently lower than an ambient gas pressure to draw the chemical from at least one surface of the substrate and toward the splash controller, wherein the dispenser has a smaller diameter than the vacuum port, and wherein the splash controller is configured to physically intercept the chemical.” (splash controller 18 (e.g., vacuum port 18) described at page 3, lines 19-21, and page 4, lines 17-18, and shown in Figures 1 and 2).

This summary is presented in compliance with the requirements of Title 37 C.F.R. § 41.37(c)(1)(v), mandating a “concise explanation of the subject matter defined in each of the independent claims involved in the appeal ...”. Nothing contained in this summary is intended to change the specific language of the claims described, nor is the language of this summary to be construed so as to limit the scope of the claims in any way.

6. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

6.1 Claims 36-39 and 41-45 stand rejected under 35 U.S.C. § 102(e) as anticipated by U.S. Patent No. 5,756,155 to Tzeng, *et al.* (hereinafter, “the Tzeng reference”).

6.2 Claims 36-39 and 41-45 stand rejected under 35 U.S.C. § 102(e) as anticipated by JP 08-017708 to Sukenari (hereinafter, “the Sukenari reference”).

6.3 Claim 40 stands rejected under 35 U.S.C. § 103(a) as unpatentable over the Tzeng reference or the Sukenari reference.

7. ARGUMENT

7.1 The Rejections under 35 U.S.C. § 102

7.1.1. Claims 36-39 and 41-45 were rejected under 35 U.S.C. § 102(e) as anticipated by the Tzeng reference.

Claims 36-39 and 41-45 were rejected under 35 U.S.C. § 102(e) as anticipated by the Tzeng reference. In rejecting the foregoing claims, the Examiner submits that the Tzeng reference discloses a nozzle that dispenses a fluid onto the edge of a wafer, which is then operable to suction the fluid from the wafer surface. The Examiner further notes that the nozzle is near the wafer edge during a vacuum cycle, and thus inherently suctions liquid "...in the vicinity, be it on the nozzle and/or the wafer edge...". (Office Action dated January 19, 2007; page 2). The Appellant respectfully traverses this rejection.

A claim is deemed anticipated "...only if each and every element as set forth in the claim is found...in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). If the prior art reference fails to explicitly disclose an element of the claim, an inherent disclosure present in the prior art reference may be relied upon to reject the claim. In asserting that the disclosure is inherently present in the prior art reference, the Examiner must provide objective evidence or cogent technical reasoning to support the alleged inherency. "In relying on the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art." *Ex Parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990); (emphasis in original). Further, evidence must be provided by the Examiner that "...make[s] clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill." *Continental Can Co. USA, Inc. v. Monsanto Co.*, 948 F.2d 1264, 1268, 20 USPQ2d 1746, 1748. An assertion of inherency may not result from the examiner's opinion regarding a possible or even probable use of the prior art disclosure. "Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is

not sufficient.” *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-1951 (Fed. Cir. 1999)

The Tzeng reference discloses a nozzle assembly that includes a self-cleaning feature. The disclosed nozzle assembly includes a vacuum hood that surrounds a tip portion of the nozzle that prevents an undesired release of a fluid (e.g., a photo resist material) onto a wafer undergoing a wafer processing. Thus, the problem addressed by the Tzeng reference is directed solely to the problem of capturing excess fluid (e.g., fluid dripping) from the tip portion of the nozzle assembly onto the wafer. For example, column 1, lines 65-67, bridging to column 2, lines 1 through 44 of the Tzeng reference provides, *inter-alia*, that the “...improved combination nozzle and vacuum hood...will pull a vacuum around the outside of the nozzle tip *which will pull residue from the nozzle.*” (Emphasis added). Still other disclosure is present in the Tzeng reference that teaches that the vacuum hood is directed solely to cleaning fluid residue from the nozzle, and *not* from a surface of the substrate. Specifically, column 3, lines 20-27 provide that the “...combination of a nozzle and a vacuum hood...*captures residue from the nozzle in a vacuum...[that] removes residue from the tip of a nozzle thus preventing the residue from interfering with the spraying action or dripping down.*” (Emphasis added). Column 4, lines 24-26 clearly states that: “...The vacuum source supplies a vacuum to the hood *to pull off the residue from around the nozzle tip.*” (Emphasis added). At column 5, lines 35-40, a method is disclosed that recites in pertinent part: “...creating an upward flow of a gas about the dispensing nozzle when the flow of fluid through the nozzle is terminated...[and]...*capturing any fluid dripage (sic.) from the nozzle in the upward flow of gas...*” (Emphasis added). At column 6, lines 29-32, the method is further described as using “...a nozzle having a vacuum hood *which removes spray media residue from the nozzle...*” (Emphasis added). Finally, column 6, lines 41-47 discloses that: “A common problem is where spray media drips or forms in a nozzle opening while the wafer is waiting for the next wafer spray operation...Without the vacuum hood the media residue would be thrown/dripped on the wafer...” (Emphasis added).

In summary, therefore, Appellant simply cannot find any disclosure in the Tzeng reference that teaches that the vacuum hood is intended, much less effective, in capturing a chemical that is first directed at the wafer, and then suctioned away from a surface of the wafer, as argued by the Examiner. Moreover, it is not apparent that an assertion of inherency is

properly applied here, since the vacuum hood disclosed by Tzeng may effectively remove the undesired droplets from the nozzle even in cases where the wafer is positioned at distance where the vacuum does not interact with the wafer, and even in cases *where no wafer is present*.

7.1.2. Claims 36-39 and 41-45 were rejected under 35 U.S.C. § 102(e) as anticipated by the Sukenari reference.

Claims 36-39 and 41-45 were also rejected under 35 U.S.C. § 102(e) as anticipated by the Sukenari reference. Specifically, the Examiner submits that the Sukenari reference "...teaches an evacuation/exhaust nozzle...[and] that the recitation of an evacuation nozzle or exhaust nozzle inherently teaches a vacuum...for evacuation or exhausting to occur..." (Office Action dated January 19, 2007; page 2). The Appellant also respectfully traverses this rejection.

The Sukenari reference discloses an apparatus that is configured to accelerate the exfoliation (*i.e.*, flaking or scaling off) of a resin film, or other similar materials from a surface of a wafer. The reference discloses a light source configured to project ultraviolet radiation towards a substrate, and gas discharge "assist" nozzles configured to intermittently direct "assist" gases from a pressurization source to a surface of the wafer. The reference discloses that the light source is operable to irradiate the resin film, while "assist gases" are intermittently projected towards the irradiated resin film. The assist gases, which include oxygen (O₂) and ozone (O₃) chemically react with the irradiated film to effect removal of the undesired material from the wafer.

The Examiner has asserted a correspondence between the gas discharge "assist nozzles" and the splash controller. Appellant notes, however, that the Sukenari reference does not disclose that the gas discharge "assist" nozzles may generate a gas pressure on any portion of the wafer that is lower than an ambient gas pressure. Instead, the Sukenari reference clearly teaches that the "assist" nozzles are configured to project the assist gases toward the wafer, so that the "assist" nozzles generate a gas pressure that at least equals, and may be higher than an ambient gas pressure.

With regard to the Examiner's inherency argument, Appellant respectfully asserts that the Examiner has failed to provide *any* objective evidence or technical reasoning to support the alleged inherent presence of a gas pressure that is lower than an ambient pressure. Appellant further strenuously asserts that the Examiner is obligated to provide a basis in fact and to provide

technical reasoning to support the determination that the alleged inherent presence of a gas pressure that is lower than an ambient pressure, in fact, exists.

7.2 The Rejections under 35 U.S.C. § 103

7.2.1. Claim 40 was rejected under 35 U.S.C. § 103(a) as unpatentable over the Tzeng reference, or alternatively, the Sukenari reference.

Claim 40 was rejected under 35 U.S.C. § 103(a) as unpatentable over the Tzeng reference, or alternatively, the Sukenari reference. In rejecting the foregoing claim, the Examiner admits that neither the Tzeng reference nor the Sukenari reference teaches a second nozzle that is configured to project a solvent towards a second side of the wafer that is opposite a first side of the wafer. In order to rectify the foregoing deficiency in the Tzeng and Sukenari references, the Examiner asserts that it would have been obvious to one skilled in the art at the time of the claimed invention to provide a second nozzle to treat the second side of the wafer, since “it is obvious to duplicate the parts of the apparatus of Tzeng or Sukenari...”. (Office Action dated January 19, 2007; page 6). The Appellant respectfully traverses this rejection.

A claimed invention is unpatentable if the differences between the cited art and the claimed invention are “such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art.” 35 U.S.C. § 103(a). In *Graham v. John Deere Co.*, 383 U.S.1, (1966), the Court held that an obviousness analysis begins with several basic fact-based inquiries: “[(1)] the scope and content of the prior art are to be determined; [(2)] differences between the prior art and the claims at issue are to be ascertained; and [(3)] the level of ordinary skill in the pertinent art resolved.” *Id.* At 17. Upon review of these facts, the obviousness of the invention is then determined “against the background” of the foregoing *Graham* factors. *Id.* At 17-18.

The Supreme Court has recently provided valuable guidance for determining obviousness based upon the *Graham* factors in *KSR International v. Teleflex, Inc.*, 127 S.Ct 1727, 82 USPQ2d 1385 (2007). In pertinent part, *KSR* provides that: “a combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.” 127 S.Ct 1727, 1731, 82 USPQ2d 1385 at 1396. Further, “When a work is available in one field of endeavor, design incentives and other market forces can prompt variation of it, either in the same field or a different one. If a person of ordinary skill can implement a

predictable variation, §103 likely bars its patentability.” *Id.* Moreover, “if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond that person’s skill”. *Id.* Still further, *KSR* provides that: “Under the correct analysis, any need or problem known in the field of endeavor at the time of invention and addressed by the patent can provide a reason for combining the elements in the manner claimed.”. 127 S.Ct 1727, 1732, 82 USPQ2d 1385 at 1397.

With reference again to the Tzeng reference, Appellant again emphasizes that the problem addressed by the Tzeng reference is directed solely to the problem of capturing excess fluid (e.g., fluid dripping) from the tip portion of the nozzle assembly onto the wafer. Appellant notes, however, that an excess fluid dripping from a nozzle positioned *below* the wafer would not need to be captured in the manner taught by the Tzeng reference, since the dripping would not be directed towards the wafer, but *away* from the wafer. With the court’s *KSR* decision in mind, Appellant submits that the Examiner’s suggestion that the addition of a lower nozzle to Tseng is not a “predictable variation”, within the ambit of *KSR*, and that the proposed modification would not occur to one of ordinary skill in light of the Tzeng reference, simply because the stated problem (e.g., fluid dripping from a hypothetical lower nozzle) simply would not exist if a lower nozzle were added to the Tzeng reference.

Turning again to the Sukenari reference, the disclosed apparatus is structured to accelerate the exfoliation of resin films from a surface of a wafer. Accordingly, “assist gases” are intermittently projected towards an irradiated resin film. As discussed previously above, the assist gases chemically react with the irradiated film to effect removal of the undesired material from the wafer. Appellant submits that the Sukenari reference does not disclose or suggest any method by which radiation may be projected to an underside of the wafer. Appellant therefore submits that the Examiner’s suggestion that the addition of a lower nozzle to Sukenari is not a “predictable variation” based upon the Sukenari reference, and that the proposed modification would not occur to one of ordinary skill, because Appellant cannot find any relevant disclosure or suggestion that gas discharge “assist” nozzles may be directed to an underside of a wafer. In fact, Appellant notes that the wafer is retained on a mounting device that *prevents* access to a backside of the wafer.

8. SUMMARY

For the reasons set forth above, no proper *prima facie* case of anticipation or of obviousness presently exists. Reversal of the rejections and allowance of the pending claims are therefore respectfully requested. If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

TRUNG T. DOAN

By his Representatives,

SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A.

P.O. Box 2938

Minneapolis, MN 55402

Date

18 June '07

By



Timothy B. Clise

Reg. No. 40,957

CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being filed using the USPTO's electronic filing system EFS-Web, and is addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on this 18 day of June 2007.

Name

KATE GARNON

Signature



CLAIMS APPENDIX

36. A device comprising:

a dispenser configured to release a chemical toward an edge bead of a substrate; and
a splash controller concentrically positioned at least partially around said dispenser and physically unattached from the edge bead, the splash controller being configured to draw the chemical from at least one surface of the substrate and toward said splash controller, wherein said splash controller is configured to generate a gas pressure around the edge bead that is lower than an ambient gas pressure, and wherein said splash controller is configured to physically intercept the chemical.

37. The device in claim 36, wherein the splash controller is around the edge bead.

38. The device of claim 36, wherein the splash controller completely surrounds said dispenser.

39. The device of claim 36, wherein the dispenser has a diameter smaller than a diameter of the splash controller.

40. The device of claim 36, wherein said dispenser is configured to release a chemical on a first side of a wafer and a second side of the wafer toward an edge bead, wherein the splash controller completely surrounds said dispenser.

41. A device comprising:

a dispenser configured to release a chemical toward an edge bead on a semiconductor substrate; and

a splash controller including a vacuum port, wherein the vacuum port is concentrically positioned about the dispenser, wherein the vacuum port is configured to generate a gas pressure around the edge bead and the dispenser, the generated gas pressure being sufficiently lower than an ambient gas pressure to draw the chemical from at least one surface of the substrate and

toward the splash controller, wherein the dispenser has a smaller diameter than the vacuum port, and wherein the splash controller is configured to physically intercept the chemical.

42. The device of claim 41, wherein said dispenser is to release a chemical on a first side of a semiconductor substrate.

43. The device of claim 42, wherein said dispenser is to release a chemical on a second side of a semiconductor substrate.

44. The device of claim 43, wherein said dispenser is to release a solvent.

45. The device of claim 42, wherein said dispenser is to release a photoresist solvent.

EVIDENCE APPENDIX

None.

RELATED PROCEEDINGS APPENDIX

Copies of the decisions in related appeals 2002-2158 and 2005-1352 are attached.

The opinion in support of the decision being entered today was **not** written for publication and is **not** binding precedent of the Board.

Paper No. 16

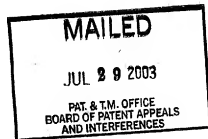
UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte TRUNG T. DOAN

Appeal No. 2002-2158
Application No. 09/652,713

ON BRIEF



Before COHEN, ABRAMS, and STAAB, Administrative Patent Judges.
ABRAMS, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the examiner's final rejection of claims 36 and 37, which are all of the claims pending in this application.

We REVERSE AND ENTER A NEW REJECTION UNDER 37 CFR § 196(b).

RECEIVED
AUG 06 2003

BACKGROUND

The appellant's invention relates to a chemical dispensing system for semiconductor wafer processing. The claims on appeal have been reproduced below.

The single prior art reference of record relied upon by the examiner in rejecting the appealed claims is:

Hurtig

5,289,222

Feb. 22, 1994

The examiner has rejected claims 36 and 37 under 35 U.S.C. § 102(b) as being anticipated by Hurtig.

Rather than reiterate the conflicting viewpoints advanced by the examiner and the appellant regarding the above-noted rejection, we make reference to the Answer (Paper No. 12) for the examiner's complete reasoning in support of the rejections, and to the Brief (Paper No. 11) and Reply Brief (Paper No. 13) for the appellant's arguments thereagainst.

OPINION

In reaching our decision in this appeal, we have given careful consideration to the appellant's specification and claims, to the applied prior art reference, and to the respective positions articulated by the appellant and the examiner. As a consequence of our review, we make the determinations which follow.

As explained in the appellant's specification, coating materials commonly are applied to semiconductor wafers by flowing liquid coating material onto the top surface of a wafer while it is spinning on a rotating spin chuck. The rotation causes the coating material to flow outwardly over the wafer. In practice, however, some excess coating material tends to collect at and form a bead around the edge of the wafer. This commonly is removed by dispensing a solvent along the edge of the wafer, which then is removed along with the excess coating that had formed the edge bead. The appellant's invention is directed to a device for removing the solvent and the bead. The claims before us express the invention in the following manner:

36. A device for an edge bead, comprising:

a dispenser configured to release a chemical toward said edge bead; and

a splash controller around said dispenser, physically unattached from said edge bead, and configured to draw said chemical toward said splash controller, wherein said splash controller is configured to generate a gas pressure around said edge bead that is lower than an ambient gas pressure, and wherein said splash controller is configured to physically intercept said chemical.

37. The device in claim 36, wherein said splash controller is around said edge bead.

New Rejection By This Panel Of The Board

At the outset, pursuant to our authority under 37 CFR § 196(b), we enter the following new rejection:

Claims 36 and 37 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicant views as the invention.

Claim 36 recites a splash controller that is "configured to draw said chemical toward said splash controller" and "configured to generate a gas pressure around said edge bead that is lower than an ambient gas pressure." The common applicable definition of "configured" is "shaped," of "draw" is "to cause to move toward," and of "generate" is "to bring into existence."¹ Thus, claim 36 requires that the splash controller be so shaped as to (1) cause the chemical to move toward it and (2) cause a gas pressure lower than an ambient gas pressure to be brought into existence around the edge of the bead. We also point out that the term "splash controller" is not present in the specification or in the original claims. However, as we understand the structure and operation of the invention from the specification, what is recited as the "splash controller" in the claims is "vacuum port 18," an element to which suction is applied to create a "surround vacuum" that "controls solvent and particle splashing during the

¹See, for example, Merriam Webster's Collegiate Dictionary, Tenth Edition, 1996, pages 242, 351, and 485, respectively.

process of removing the edge bead" and improves the edge profile of the coating material as "the dissolved coating material and excess solvent is suctioned away" therethrough (page 4, lines 5-18). There is no description of the configuration of the suction ports shown in Figures 1 and 2, but they appear merely to be cylindrical tubes.

The second paragraph of 35 U.S.C. § 112 requires claims to set out and circumscribe a particular area with a reasonable degree of precision and particularity. In re Johnson, 558 F.2d 1008, 1015, 194 USPQ 187, 193 (CCPA 1977). In making this determination, the definiteness of the language employed in the claims must be analyzed, not in a vacuum, but always in light of the teachings of the prior art and of the particular application disclosure as it would be interpreted by one possessing the ordinary level of skill in the pertinent art. Id.

It is our view that one of ordinary skill in the art would deduce from the specification that the "splash controller" recited in the claims is the "vacuum port 18" described in the specification, if for no other reason than there simply is no other element of the disclosed invention to which this could apply. However, from our perspective, one of ordinary skill in the art would not be advised by the specification of what structure of the splash controller is "configured to draw" the chemical toward it and "configured to generate" a gas pressure that is lower than ambient (emphasis added in both cases), inasmuch as it would appear that it is the suction applied through the

splash controller and not the configuration of the splash controller that accomplishes these tasks. This matter is important because the appellant has argued on page 3 of the Brief that claim 36 distinguishes over the Hurtig apparatus on the basis of these "configured" limitations, in that the claimed splash controller is "configured to *draw toward itself* a particular chemical . . . [and] the Examiner has cited no portion of the [sic] Hurtig that indicates its guard is configured to draw toward itself any chemical." However, the same can be said for the appellant's disclosure, in that there is no explanation of how the configuration of the splash controller draws chemicals and generates a low gas pressure around the edge bead. Thus, if as the appellant contends, Hurtig is defective as an anticipatory reference because there is no disclosure which would support a conclusion that the configuration of element 104B causes a chemical to be drawn toward it, it would seem that claim 36 is indefinite for the same reason.

It is our opinion that the aforementioned situation causes the metes and bounds of claim 36 not to be determinable. Since the public must be apprised of exactly what a patent covers so that those who would approach the area circumscribed by the claims may more readily and accurately determine the boundaries of protection involved and evaluate the possibility of infringement and dominance, claim 36 does not comply with

the second paragraph of 35 U.S.C. § 112. See In re Hammack 427 F.2d 1378, 1382, 166 USPQ 204, 208 (CCPA 1970).

The Examiner's Rejection

Claims 36 and 37 stand rejected as being anticipated by Hurtig. However, when no definite meaning can be ascribed to certain terms in a claim, as is the case with claim 36, the subject matter does not become unpatentable, but rather the claim becomes indefinite. See In re Wilson, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970). Since it is clear to us that considerable speculation and assumptions are necessary to determine the metes and bounds of what is being claimed in claim 36, and since a rejection cannot be based upon speculation and assumptions, we are constrained to reverse the examiner's rejection. See In re Steele, 305 F.2d 859, 862, 134 USPQ 292, 295 (CCPA 1962). We hasten to point out, however, that this action should not be construed as an indication that the claimed subject matter would not have been anticipated by the cited reference. We have not addressed this issue, for to do so would require on our part the very speculation which formed the basis of our rejection under Section 112.

CONCLUSION

The rejection of claims 36 and 37 as being anticipated by Hurtig is not sustained.

Pursuant to 37 CFR § 196(b), claims 36 and 37 are rejected under 35 U.S.C.

§ 112, second paragraph, as being indefinite.

This decision contains new grounds of rejection pursuant to 37 CFR § 1.196(b). 37 CFR § 1.196(b) provides that "[a] new ground of rejection shall not be considered final for purposes of judicial review."

37 CFR § 1.196(b) also provides that the appellant, WITHIN TWO MONTHS FROM THE DATE OF THE DECISION, must exercise one of the following two options with respect to the new grounds of rejection to avoid termination of proceedings (37 CFR § 1.197(c)) as to the rejected claims:

(1) Submit an appropriate amendment of the claims so rejected or a showing of facts relating to the claims so rejected, or both, and have the matter reconsidered by the examiner, in which event the application will be remanded to the examiner. . . .

(2) Request that the application be reheard under § 1.197(b) by the Board of Patent Appeals and Interferences upon the same record. . . .

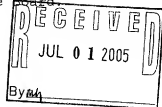
Appeal No. 2002-2158
Application No. 09/652,713

Page 10

CHARLES BRANTLEY
MICRON TECHNOLOGY, INC.
8000 S. FEDERAL WAY
BOISE, ID 83716-9632

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE



BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte TRUNG T. DOAN

Appeal No. 2005-1352
Application 09/652,713

ON BRIEF

Before OWENS, JEFFREY T. SMITH, and PAWLIKOWSKI, *Administrative Patent Judges*.

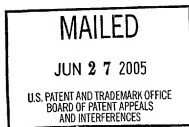
OWENS, *Administrative Patent Judge*.

DECISION ON APPEAL

This appeal is from the final rejection of claims 36 and 37, which are all of the claims pending in the application.

THE INVENTION

The appellant claims a device for removing the edge bead that forms when a wafer is spin-coated with a chemical. The claimed device dispenses a solvent near the edge bead and uses suction to remove the dissolved edge bead and excess solvent.



Claim 36 is illustrative:

36. A device for an edge bead, comprising:

a dispenser configured to release a chemical toward said edge bead; and

a splash controller around said dispenser, physically unattached from said edge bead, and configured to draw said chemical toward said splash controller, wherein said splash controller is configured to generate a gas pressure around said edge bead that is lower than an ambient gas pressure, and wherein said splash controller is configured to physically intercept said chemical.

THE REFERENCE

Hurtig

5,289,222

Feb. 22, 1994

THE REJECTION

Claims 36 and 37 stand rejected under 35 U.S.C. § 112, ¶2 as being indefinite.

OPINION

We reverse the aforementioned rejection and remand.

This case previously was before the board (appeal no. 2002-2158). In that appeal, appellant appealed the examiner's rejection of claims 36 and 37 as being anticipated by Hurtig under 35 U.S.C. § 102(b). The board did not reach the § 102(b)

issue because the board found the metes and bounds of the claims to be not determinable.

The board's reasoning:

The common applicable definition of 'configured' is 'shaped,' of 'draw' is 'to cause to move toward,' and of 'generate' is 'to bring into existence.' Thus, claim 36 requires that the splash controller be so shaped as to (1) cause the chemical to move toward it and (2) cause a gas pressure lower than an ambient gas pressure to be brought into existence around the edge of the bead (board's decision, page 4).

[F]rom our prospective, one of ordinary skill in the art would not be advised by the specification of what structure of the splash controller is 'configured to draw' the chemical toward it and 'configured to generate' a gas pressure that is lower than ambient..., inasmuch as it would appear that it is the suction applied through the splash controller and not the configuration of the splash controller that accomplishes these tasks (board's decision, pages 5-6)

The board rejected claims 36 and 37 on new grounds as being indefinite under 35 U.S.C. § 112, ¶2.

Appellant submitted a showings of fact pursuant to 37 C.F.R. 1.196(b)(1) to avoid a termination of proceedings. Appellant's showings of fact included dictionary definitions of "configure" and excerpts from patents that disclose suction as being a function of the design or the arrangement of a device. Appellant's showings of fact cited the dictionary definition of "configure" to be: "[t]o design, arrange, set up, or shape..." THE AMERICAN HERITAGE ELECTRONIC DICTIONARY (1992). Appellant argued that

"configured" meant "to set up for operation" and that "one of ordinary skill in the art would be aware that suction is a function of design, arrangement, set up, or shape (i.e. configuration) of a relevant device, as demonstrated by the patents cited [in the showings of fact]" (brief, page 8).

The examiner considered appellant's showings of fact and found it to be unpersuasive because the showings of fact did not contribute anything new (office action, 12/28/03). The examiner let the board's rejection under § 112, ¶2 stand and appellant now appeals the examiner's decision.

Appellant in this appeal argues that the claims meet the definiteness requirement of 35 U.S.C. § 112, ¶2. Appellant makes the same arguments appellant made previously in the showings of fact.

"The test for definiteness is whether one skilled in the art would understand the bounds of the claim when read in light of the specification. If the claims read in light of the specification reasonably apprise those skilled in the art of the scope of the invention, § 112 demands no more." *Miles Laboratories, Inc. v. Shandon Inc.*, 997 F.2d 870, 875, 27 USPQ2d 1123, 1126 (Fed. Cir. 1993) (citations omitted).

The specification in pertinent part states:

In one aspect of this system, an apparatus for removing the edge bead includes a mechanism for dispensing a solvent selectively onto the edge of the wafer, and a mechanism surrounding the dispensing mechanism for vacuuming excess solvent and dissolved coating material from the edge of the wafer (specification, page 2 lines 18-21).

The specification also points out that it is the application of suction to the area immediately surrounding the edge bead that accomplishes the goal of reducing spillage of the solvent onto other areas of the wafer (specification, page 5).

Appellant's figure 1 shows that dispensing nozzle 16 is surrounded by vacuum port 18 (splash controller). The specification indicates that vacuum port 18 is coupled with a mechanism that is a source of suction (specification, page 3 lines 17-20).

We conclude that the limitations "configured to draw" and "configured to generate" are definite because when "configure" is given its broadest meaning in light of the dictionary definition provided by appellant and the specification, one of ordinary skill would reasonably interpret the scope of limitations to refer to the way in which the splash controller is situated with respect to the dispenser (i.e., around it) and understand that the splash controller will be coupled with a source of suction.

Appeal No. 2005-13
Application No. 09/652,713

For the above reasons, we reverse the rejection under
35 U.S.C. § 112, ¶2.

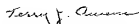

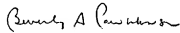
REMAND

We remand the application to the examiner for the
examiner and appellant to address the rejection under
35 U.S.C. § 102(b) which was not reached by the board in
the previous appeal.

DECISION

The rejection under 35 U.S.C. § 112, ¶2 of claims 36 and 37
is reversed. The application is remanded to the examiner.

REVERSED AND REMANDED

)	
TERRY J. OWENS)	
Administrative Patent Judge)	
)	
)	BOARD OF PATENT
JEFFREY T. SMITH)	
Administrative Patent Judge)	APPEALS AND
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BEVERLY A. PAWLIKOWSKI)	
Administrative Patent Judge)	

Appeal No. 2005-13
Application No. 09/652,713

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